

brush removal has been reduced or applied in a manner that is not detrimental to wildlife, thus improving the habitat for deer and other wildlife species such as birds, reptiles, rabbits, ground squirrels, bobwhite quail and wild turkey.

Identification of these key food plants and knowing their nutritional value becomes an important aspect of evaluating habitat, range condition and ecosystem health of the South Texas Plains area.

Grouped into thorned and thornless categories, the plants are alphabetized by family with common and scientific names given. Each plant is laid out in a two page spread with often three color photos showing habit, flowers and fruit. Text includes the description and values of the plant to wildlife, cattle, goats, as well as humans and a nutritional Crude Protein Value chart for each plant. A summary chart is provided showing the percentage of nutritional values of crude protein (CP), digestible protein (DP), and digestible dry matter (DMD) for each season of the year. In addition, a bibliography, illustrated glossary and index are provided.

With the ever increasing need to conserve our resources, it would seem to me that many of these plants could be incorporated into the South Texas homeowner's landscape. Native plants not only provide beauty and ease of care, they can provide a welcomed food source to some of the most coveted visitors into our gardens ... butterflies and hummingbirds.—*Limy Heagy*.

PAUL KENRICK AND PETER R. CRANE. 1997. *The Origin and Early Diversification of Land Plants A Cladistic Study*. (ISBN 1-56098-729-4, pbk; 1-56098-730-8, hbk). Smithsonian Institution Press, 470 L'Enfant Plaza, Suite 7100, Washington, DC 20560. 202-287-3738, ext. 343. \$27.50 pbk, \$55.00 hbk. 441 Pp.

This book represents the first attempt to synthesize the classical approach to land plant evolution with the modern approaches offered by morphogenetic and molecular evidence presented in a phylogenetic context. The book is divided into 7 chapters, followed by 5 appendices, an exhaustive bibliography, taxonomic and subject indices.

The first two chapters give a historical background, a primer on phylogenetic systematics, and the applications of paleobotanical data to modern systematic studies. It is followed by a cogent summary of our current understanding of the kingdoms of organisms and the higher ranks containing "plants". The subsequent three chapters cover the Embryobionta, Polysporangiophytes, Zosterophylloids and Lycophytes, and Lycopodiophytes. Each section deals with the origins of the group's concept, systematics, phylogenetic questions and aims of analysis, choice of taxa, character descriptions and coding, analysis, results and discussion. This organization of data is the first of its kind, and clearly points out the depth or dearth of our current knowledge for each character, its origin, morphogenesis, evidence from the fossil record, and systematic utility. For each analysis and result, step-by-step explanations are clearly given, limits of available data are thoroughly discussed, and suggestions for future work outlined. The purpose of the series, "...to publish innovative studies in the fields of comparative evolutionary biology, especially by authors willing to introduce new ideas or challenge or expand views now accepted," is truly fulfilled in these chapters. I can think of

no more cogent summary of what we know, what questions remain, and how we might proceed to answer them.

The last chapter, "Perspectives on the early evolution of land plants" is the most illuminating of all. In addition to the proposed classification of the Chlorobionta to the level of infraclass, it offers a clear explanation of such concepts as the annotated Linnaean conventions recommended by Wiley, with several additions that logically permit the systematic positioning of fossil groups. Comparison of the phylogenetic classification presented for the land plants, together with the historical and modern processes underlying character analyses, give all students of plant evolutionary biology a fundamental understanding of the strengths or weaknesses of competing concepts. I found the discussion of microphyll evolution in lycopods particularly complete, in which the three competing hypotheses: reduction, enation and sterilization, are explained in detail, first in ontogenetic, then in taxic homologous terms.

The appendices are detailed and give us a picture of how reliable fossil evidence is for key groups, followed by complete character and character state coding tables. The bibliography is extensive, as are the taxonomic and subject indices. This book is a must as a foundation for any major graduate course in plant comparative morphology or systematic and evolutionary biology. I wish it had existed when I was preparing for my doctoral comprehensive exam!—*John J. Pipoly III.*

JAMES MAUSETH. 1998. **Botany. An Introduction to Plant Biology, 2nd Ed. [Multimedia Enhanced Edition].** (ISBN 0-7637-0746-5, hbk; ISBN 0-7637-0406-7, CD ROM). Jones and Bartlett Publishers, 40 Tall Pine Drive, Sudbury, MA 01776. \$75.00. 794 Pp. text, 20 Pp. glossary, 23 Pp. index.

MARSHALL SUNDBERG. 1995. **Instructor's Resource Manual to Accompany Botany: An Introduction to Plant Biology, Second Edition/ANN M. MICKLE AND JAMES E. MICKLE. Test Bank and Bio Art.** (ISBN 0-03-005892-9, pbk). Harcourt Brace & Company. No separate price given. 387 Pp. text; 37 Pp. illustrations.

This textbook, CD-ROM, instructor's manual, and enhanced web site (<http://www.jbpub.com/botanylinks>) provides the most comprehensive set of modern, multimedia course materials this reviewer has ever seen. It is truly impressive!

The textbook is constructed in one of the most logical, easiest-to-use ways imaginable. The preface clearly states that "three topics are so important, so fundamental, that they must permeate every aspect of an introductory botany textbook and should be mentioned or alluded to on every page: they are evolution by natural selection, analysis of botanical phenomena, and diversity of organisms and all their components."

The book is divided in four parts: plant structure, plant physiology and development, genetics and evolution, and ecology. The "part openers" section that introduces each part summarizes the chapters belonging to each part, and how those themes relate to the other respective parts. Within each of the 27 chapters, a "concepts" section comprises several